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(54) **SELF-BLUNTING NEEDLE MEDICAL DEVICES AND METHODS OF MANUFACTURE THEREOF**

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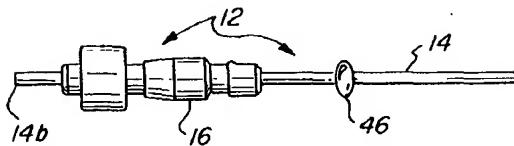
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**References Cited****U.S. PATENT DOCUMENTS**

1,527,291	2/1925	Zorraquin .
3,491,756	1/1970	Bentov .
3,536,073	10/1970	Farb .
3,585,996 *	6/1971	Reynolds ..... 604/158
3,809,081	5/1974	Loveless .
4,068,659 *	1/1978	Moorehead ..... 604/159
4,121,588	10/1978	Geiger .
4,233,975	11/1980	Yerman .
4,274,408	6/1981	Nimrod .
4,525,157	6/1985	Vaillancourt ..... 604/510



4,529,399	7/1985	Groshong et al. ....	604/510
4,613,329	9/1986	Bodicky .....	604/158
4,627,841	12/1986	Dorr .....	604/158
4,675,005	6/1987	DeLucia .....	604/110
4,721,506	1/1988	Teves .....	604/506
4,801,295	1/1989	Spencer .....	604/198
4,808,169	2/1989	Haber et al. ....	604/195
4,810,248	3/1989	Masters et al. ....	604/192
4,828,547 *	5/1989	Sahi et al. ....	604/164.06

(List continued on next page.)

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Frederick A. Spaeth***(57) ABSTRACT**

A self-blunting needle medical device comprises a needle cannula (18) fixed to a hub (20) having a receiving structure therein such as ferrule (22) and a movable blunting member (14) movably received within the cannula (18). Ferrule (22) defines a passage (38) extending therethrough, within which both the cannula (18) and the movable member (14) can be received and which establishes a coaxial relationship between them. The ferrule (22) defines a first guide surface (40) for directing the blunting end (14a) of the movable member (14) into the central bore of the cannula (18) during assembly. A second guide surface (42) performs the function of guiding the mounting end (14b) of the cannula (18) into ferrule (22) for mounting therein. Typically, the cannula (18) has a tissue puncture tip (18a). When the movable member (14) is retracted into the cannula (18), the puncture tip (18a) is exposed for use, e.g., injection into tissue. The movable member (14) is then moved to an extended position in which blunting end (14a) projects beyond the puncture tip (18a), to render the device safe with regard to subsequent accidental needle sticks. Methods of assembling the self-blunting needle are also presented. In various embodiments, the guide member may be integral with the assembled device or may be defined by a guide member that is used only in the assembly process and from which the assembled device may be removed.

**28 Claims, 9 Drawing Sheets**